Children's Awareness of Online Advertising on Neopets: The Effect of Media Literacy Training on Recall

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Abstract
This pilot study explored the inherent ability of 4th and 5th graders to identify online advertising on the Neopets Website. The same children were then given a brief media literacy training session and retested on the ability to identify embedded online advertising. Only 23% of children were initially able to identify the purpose of branded games as advertising. Recognition of embedded ads within advergames increased 33% and recognition of branded advergames as advertising rather than as entertainment increased 26% following a single, brief media literacy training session. Initially, older children were able to recognize online advertising more readily than younger ones, but that difference leveled when both groups were exposed to media literacy training.

Children's Awareness of Embedded Advertising on Neopets:
The Effect of Media Literacy Training on Recall

> *It may not be in the marketers' best interests for children to become media literate, but it is in society's responsibility to ensure that they (children) do.*
>
> *Erica Weintraub Austin (2006)*

Introduction

The number of children accessing the Internet at school and home continues to skyrocket. An estimated 13.1 million children ages 2 to 11 use the Internet (Larson, 2004). The PEW Internet and American Life Project found in the fall of 2006 that 94 percent of American youth ages 12 to 17 were online (Macgill, 2007). Of those youth online, 82% of U.S. teens ages 12 to 17 and 43.5% of children ages 3 to 11 accessed the Internet on a monthly basis in 2009 (Williamson, 2008).

From 2004 to 2005 the number of children online rose 34% according to Nielsen/Net Ratings (Goetzl, 2006). The overall buying power of the U.S. youth market is estimated at $40 billion (Hawn, 2007). Jupiter Research reports that kids and teens were expected to spend $4.9 billion online in 2005 (National Retail Federation, 2005). In another Jupiter survey, 67% of online teens (13–18 years old) and children (5–12 years old) have researched or bought products online which demonstrates that children are willing to open theirs or their parents' pocketbooks online (Montgomery, 2001).

This trend has not gone unnoticed by advertisers who are moving more advertising dollars to the Web. A study by the Kaiser Family Foundation found more than 500 branded online games (advergames) for food products targeted at children (Moore, 2006). The combination of more time online and additional advertising messages increases the need for further research into the issue of Internet advertising and, in particular, embedded/interactive advertising and children.

A lack of legislative restrictions adds to the appeal of online marketing to children. Unlike broadcast television, online content is not restricted to the 10.5-minute per hour commercial weekday time limit and 12-minute per hour cap on weekends required by the 1990 Children's Television Act and the subsequent 2000 update that included digital television (FCC, 2006). In December 2000, the Children's Online Protection Act went into effect. This required all public schools and libraries to protect children's privacy and shield them from offensive materials (FCC, 2000). Beginning in 2006 digital networks,

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along with analog broadcast television networks, were required to air 3 hours of educational programming for children weekly.

Along with the 2006 digital network regulations came a new restriction that would prohibit broadcasters from showing Web addresses for sites in which program characters sold products. This type of host selling has already been banned on analog television stations, because host selling has been shown to confuse children's ability to discern program content from commercial messages. By linking to Web pages where host selling occurred, advertisers were in essence circumventing television restrictions by sending children online where the restriction was not enforced. This regulation marked the first limitation the FCC sought regarding online content directed at children. Unfortunately, the FCC bowed to advertiser pressure and backed down on the proposed regulations just two weeks before they were to go into effect (Teinowitz, 2005).

After wrangling with television network representatives and child advocates, an agreement was approved and went into effect January 2, 2007. Under the proposed, revised guidelines, broadcasters can link to Websites that include host selling; however, they can't display on TV the direct link to any page containing this form of advertising. This means that Viacom can use SpongeBob to promote products on the Nickelodeon Website, but not on any Web addresses mentioned in the TV program (Broache, 2007). The FCC did allow a number of exceptions regarding broadcasts of Internet Website addresses during programs for children ages 12 and under. These exceptions are permitted within the commercial time limitations using the following criteria: (a) the Web page offers a substantial amount of bona fide program-related or other noncommercial content; (b) the Web page is not primarily intended for commercial purposes, including either e-commerce or advertising; (c) the Website's home page and other menu pages are clearly labeled to distinguish the noncommercial from the commercial sections; and (d) the page of the Website to which viewers are directed is not used for e-commerce, advertising, or other links directing children to commercial pages (FCC, 2006).

The advertising industry has a self-regulatory body, the Children's Advertising Review Unit (CARU), which was established in 1974 to encourage responsible advertising directed towards children. Originally focused on television advertising, the group extended its reach online in 2001 when it set up its "Kids' Privacy Safe Harbor" program aimed at encouraging compliance with the Children's Online Privacy Protection Act also known as COPPA (*CARU privacy program*, 2005).

Video games have been protected by the First Amendment with the higher standard of noncommercial speech. The courts have recognized a distinction between commercial and noncommercial speech and have been willing to regulate commercial speech when it is in the best interest of the general public. The federal courts have repeatedly ruled that it was unconstitutional to ban sales of violent video games to minors because they share narrative qualities with film and literature. As a result, to date, advergames have fallen under the same protection as traditional video games. Legislation has been unsuccessfully introduced in Congress to provide the FTC with authority to regulate advergames. Until either the courts or Congress takes action, advergames still remain under the protection of noncommercial First Amendment speech standards (Grossman, 2005).

As evidenced by the previous discussion of the current state of regulation regarding children and the Internet, online advertisers face few of the restrictions regarding educational and advertising content, host selling, or time restrictions that broadcast advertisers face. Online restrictions are primarily focused on privacy issues; however, even with COPPA-compliant measures in place, children can gain access or reveal personal information simply by lying about their ages.

The lack of self or government regulations allows for an advertising free-for-all on the Web. Children are sold as commodities to mega advertisers chasing the billions of dollars spent by youth and their parents. The selling is done so subtly that neither children nor parents are aware that the ad pitch has been made and accepted. Jeff Chester, Director of the Center for Digital Democracy, summed it up, "The entire new media landscape is one immense personalized ad targeted at kids" (cited in Broache, 2007).

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While there is a plethora of studies on television advertising and children, there is a paucity of research on children's ability to recognize traditional, embedded or branded games as online advertising. The ethics of this commercialization have also received little academic or public consideration (Drotner, 1992; Livingstone, 2003). Seiter (2005) claimed that while children are savvy about television advertising, "ignorance about the commercial nature of the Web among children is rampant, not just because they don't understand product placement, but because they cannot see how monitoring and profiling – data mining – can be a business in and of itself."

This study was prompted by the question of whether children could recognize branded games as advertising. The study was also motivated by the proposition that media literacy training could improve unaided and aided recall of both embedded and traditional online advertising.

The reason ad recognition is important is that it is believed to reduce the impact of those ads on children. Calvert (2008) says children younger than eight are particularly vulnerable to commercial content because of their cognitive developmental limitations. Internet "Stealth marketing," which is embedded advertising such as online, video game and film product placements, are challenging for older children and adolescents because they are not as obvious as older marketing approaches (Calvert, 2008). The principle behind "stealth marketing" is that advertising may be more effective if consumers do not recognize it as advertising. Also this form of advertising is believed to have more influence on the hard-to-reach word-of-mouth, third-party endorsements (Eisenberg, 2002). Virtual pet Websites, such as Neopets, Webkinz and Club Penguin have been active in using embedded "stealth marketing" techniques with their young users.

This media literacy approach has shown promise in reducing the attraction of tobacco and alcohol advertising aimed at children (Austin, 2006) and it seems logical that a media literacy approach to Internet advertising could also prove useful in limiting the impact and appeal of child-targeted advertising.

RQ1: To what extent will 4th and 5th grade children be able to recognize (either assisted or unassisted) online advertising on a popular children's Website?

Most of the research about children's responses to advertising deals with television advertising. This research demonstrates that children's responses to, and ability to cope with advertising, changes as the child matures. Also, persuasive messages can have powerful effects on children's attitudes and purchase behaviors (Strasburger & Wilson, 2002).

Piaget's research is foundational for an understanding of developmental stages as they relate to advertising. Children in our study fall into Piaget's concrete operational stage (ages 7 to 11) during which children develop concrete thinking and understand the concepts of cause and effect (Inhelder & Piaget, 1958; John, 1999). A lack of abstract thinking in this age group could reasonably impair an understanding of advertising intent and the concepts of data mining and privacy. Cognition studies with television have demonstrated that children are able to recognize commercial from non-commercial programming and understand persuasive intent progressively as they mature (Fox, 1996; Kunkel, 2001; Soldow, 1983; Strasburger & Wilson, 2002).

H1: Older students will be able to recognize advertising more often than younger students.

Since children's cognitive development advances with age (Inhelder & Piaget, 1958; Soldow, 1983; Thomas, 1999; Yan, 2005), it seems likely that the younger the child, the less likely s/he will be able to recognize the commercial intent of Internet messages.

Building Media Literacy

Numerous definitions exist for the expression *media literacy*. The National Telemedia Council used a "mindful viewing" approach (The National Telemedia Council, 1992). An oft-cited definition by the National Leadership Conference on Media Literacy proffered an outcome-based definition that stated, "Media literacy is the ability of a citizen to access, analyze, and produce information for specific

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outcomes" (Aufderheide, 1993). The Center for Media Literacy's (CML) definition added the Internet to the media mix and identified media literacy as a necessary function in a democracy (Center for Media Literacy, 2005). For the present study a definition combining CML's with that of Christ and Potter's (1998) skill development approach will be employed. This definition of media literacy states that media literacy is an educational approach that provides a framework to access, analyze, evaluate and create messages in a variety of mediated forms. In the process of building this framework, development of cognitive, aesthetic, emotional and moral development is required.

Attribution theory when applied to advertising deals with the subjective causal attributions made by an individual about the intent of the advertising message (Kelly, 1967). If a child attributes the intent of the message to be persuasive, then s/he will be less motivated to consume or request the product being advertised (Robertson & Rossiter, 1974). Relating attribution theory to a media literacy program would involve training children about the persuasive nature of advertising to increase the causal attributions made by the child about the underlying purpose of the advertising. These subjective causal relationships become the basis for resistance to the persuasive intent of the messages.

H2: Recognition of online advertising will increase following exposure to media literacy training.

Current thinking about media literacy training revolves around multi-faceted approaches that involve both creative and critical content. Bazalgette advocates a three-pronged approach involving cultural, creative and critical opportunities. (Profile: Cary Bazalgette, 2006). Silverblatt, Ferry and Finan (1999) offer five approaches to studying media literacy – ideological, autobiographical, nonverbal, mythic and production elements. An ideological and production approach seems most suited to building media literacy in children. In particular an ideological approach that deals with the hegemony of consumerism can be used when addressing online advertising literacy . The media plays a critical role in creating and reinforcing our consumer culture by depicting "a world in which social problems are resolved through consumerism rather than political action" (Silverblatt, Ferry, & Finan, 1999).

A critical/ideological approach was developed in media literacy training used in this study. As discussed previously, when children are able to understand the commercial intent of messages, their ability to create an informed response increases. By teaching skills to critically assess commercial messages and to identify the consumer-driven ideologies of the Internet children would be better equipped to process commercial content. Through emphasizing the constructs that the Internet is not free and is financed primarily through advertising revenue (Seiter, 2005), participants were informed of the ideological interests of Websites to encourage consumption.

Production elements refer to the artistic and stylistic qualities of a presentation. These elements influence the emphasis or interpretation of the information, the reaction of the audience and the way in which the audience receives the message (Silverblatt et al., 1999) Since much of the media literacy training today focuses on television (Austin, 2006; Roberts, Christenson, Gibson, Mooser, & Goldberg, 1980; Singer, Zuckerman, & Singer, 1980), the production elements manifest themselves differently in an online environment. These production elements when applied to online advertising might include ad placement technique.

For our discussion we addressed traditional advertising (button or banner advertising) advergaming which is the use of interactivity (branded online games), embedded advertising which is product placement within the Web site separate of games, character/host-selling – such as SpongeBob promoting a product – and the use of color and sound. Children were encouraged to identify these elements as part of the media literacy training sessions in this study.

Why Neopets?

Neopets has 100 million accounts and factoring in multiple accounts held by single users, the company estimates there are at least 30 million total users. This makes Neopet's one of the most influential child-target sites on the Internet. The site is translated into 10 languages and has a global audience. The largest concentrations of users are in the U.S.A., Canada and Australia (NeoPets, 2006). *Neopets' press kit* (2006)

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states the site is the ninth most visited site on the Internet based on a company-sponsored study by Media Matrix. Neopets estimates that 39 percent of its users are under 13-years-old, 40 percent are 13–17-years-old and the remaining 21 percent are adult users. The site attracts slightly more females than males with 57 percent female users.

Neopets.com began in 1999 as the brainchild of two British college students, Adam Powell and Donna Williams. Powell and Williams no longer own Neopets but continue to work in creative capacities with the company. Current CEO, Doug Dohring, purchased Neopets in April 2000. Four months after Dohring purchased Neopets, the Website turned its first profit (NeoPets, 2006). In 2005, Viacom's MTV Networks, which also owns Nickelodeon children's television network, purchased Neopets for $160 million (Oser & Klaassen, 2005). The purchase of Neopets in conjunction with other Viacom holdings gives the company 60% of the children's online market share (Bombassei, Redstone, Freston, & Dolan, 2006).

One reason Viacom paid millions for NeoPets, Inc. is the Website's advertising viability. Neopets users are faithful repeat Website visitors, which makes the site one of the stickiest on the Internet, a term marketers use in reference to the amount of times spent on any given Website. In fact, NeoPets has been dubbed "the stickiest kids' site on earth" (Kushner, 2005). The longer a user is on a Website, the more opportunity that user will have to view advertising. Nielsen Net-ratings ranked the site fourth among U.S. users with about 4 hours spent per person per month on the site (Wingfield, 2005). Another ratings service, Media Matrix, estimated in July 2006 that the average time spent per person per month is 5 hours and 24 minutes. Proof of Neopets' stickiness is evident when comparing Neopet's number 2 ranking to the 39 minutes spent by users on Google; the 1 hour, 19 minutes spent monthly on eBay; or the 4 hours, 26 minutes spent on third ranked Yahoo (NeoPets, 2006).

Because of Neopets' success, knock-off sites now exist. The most popular of these are Webkinz and Club Penguin. Both sites are based on a pet concept. Webkinz has real-world plush pets while Club Penguin is completely virtual. Although these sites share the stickiness of Neopets – 2.8 hours per visit for Webkinz and 54 min. per visit for Club Penguin – Neopets still has the most users spending the most time online (Hawn, 2007).

A-list advertisers flocked to Neopets because of the site's number of users, the site's stickiness, and its unique Immersive Advertising – a trademarked technique that integrates advertising as part of play on the Website (NeoPets, 2006). This technique of marrying gaming interactivity with advertising is also known as "advergaming" (Lee, 2003). Advertisers sponsor games and products appear in the virtual "stores." Users may purchase virtual branded cereals, beverages, fast-food items, candy, and other branded items in stores to give or feed to their pets or resell in their own online shops with their Neopoints. Sponsored games, such as McDonald's *Meal Hunt* or Disney's *Virtual Magic Kingdom Tour* or Limited Too's *Mix and Match* games offer gaming with a branded message continuously before players. This type of product placement is reminiscent of that found in movies and on television (Grimes & Shade, 2005). However, the online product placement/Immersive Advertising is more integrative as children can interact, albeit virtually, with the branded products.

Advertising is the primary revenue generator for Neopets. Immersive ads and the traditional banner ads account for 60 percent of NeoPets, Inc.'s revenues. The remaining 40 percent comes from offline retail sales of clothing, toys and games, which are promoted in part via the Website (Wingfield, 2005).

The effectiveness of Immersive Advertising is a draw for advertisers. CNN reports that the site earns more than $15 million per year in advertising revenues (Boese, 2003) . The client list includes McDonald's, Limited Too, General Mills cereals and even Tamagotichi, whose virtual pets are conceptually similar to Neopets (NeoPets, 2006). If Capri Sun's Immersive Advertising is any indication, then the advertising dollars may be well spent. Neopets users' consumption of Capri Sun beverages increased from 35% to 42% following exposure to the product as a virtual item in the Website's "virtual grocery store" (Weintraub, 2001).

Pets are unleashed Tamagotchi-style in the fantasy world located at *Neopets.com*. Tamagotchis originally invaded the U.S. from Japan in the late 1990s as the first handheld computerized pets. Recently

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Tamagotchis have enjoyed a resurgence in popularity, possibly due in part to the online knock-offs. Like their Tamagotchi predecessors, Neopets users must feed, play with, and care for their virtual pets. Unlike Tamagotchis, Neopets can't die, however, they do "starve" and become ill if neglected. This encourages users to continually visit the site to feed and care for their virtual pets (Seiter, 2005). To play the site, users must create or adopt at least one of 50 different virtual pet species. These pets are cartoon adaptations of real and fantasy animals and carry names such as Aisha, Kacheek, Lupe, Usul and Kougra. A maximum of four pets may be adopted at any time.

Neopets players can visit the 10 continents in the world of Neopia. In each of these fantasylands there are more than 100 virtual shops, approximately 210 games and other activities that are constantly updated. Users can create their own content through pet home pages, online clubs (called guilds) and user-owned virtual shops (NeoPets, 2006).

Current research on the site deals primarily with user opinions about the site (Chu, 2004; Grimes & Shade, 2005; Valkenburg & Soeters, 2001) quantitative analysis of stickiness – the time spent on the site (Danahaer, Mullarkey, & Skander, 2005; Lealand & Zanker, 2003) and analysis of learning opportunities presented by Neopets (Hobbs, 2004; Sky-McIlvain, 2005).

Seiter (2003) began to explore the impact of Neopet's Immersive Advertising in her field research. She found that elementary school children did not recognize advertising on Neopets. After prompting, only banner ads were recalled by her students ($N = 150$). When children were asked to look more carefully, they were better able to locate advertising on Neopets. Seiter called for media literacy education for children about product placements in Websites and video games and data mining techniques. Chung (2005) echoes this sentiment and voiced concern that although Neopets is COPPA compliant, the amount of information it requires at sign up and the online surveys it conducts may be a violation of children's privacy.

A review of the literature indicates a dearth of research on children's recognition of online advertising, and of Neopet's Immersive Advertising or advergaming. According to a Kaiser Family Foundation report on advergaming and online marketing of food to children, "Little is known about the nature and effects of emerging media… Yet commentators on all sides of the issue recognize that the picture is incomplete, and that the many new forms of marketing activity targeted at children needs to be investigated as well" (Moore, 2006). This study's guiding purpose is to add to this much-needed body of knowledge.

Methodology

An experiment was conducted in which subjects were given an online pre-test about both traditional advergaming and embedded advertising on the Neopets Website. Following the online survey, students participated in a 10-minute media literacy class that used screen shots of non-Neopets children's Websites (Nick.com and Millsbury.com) as examples in a brief PowerPoint presentation. The purpose of the training was to establish a basic understanding of the types of advertising present online, such as button, banners, pop-ups, etc. Children were also introduced to embedded ads in games and engaged in a "scavenger hunt" to find ads on the Nickelodeon Website.

The study was administered in the school's computer lab in two sets of five 30-minute sessions. The class size ranged from 10–12 as the small lab had a maximum class size of 14. Each student had her/his own computer station. The survey and training were administered by a single researcher in an attempt to create continuity throughout the sessions. Students were informed that they would be shown Web pages and would be asked their opinion about the sites. The purpose of the study was not revealed during the course of the study and parents were asked not to discuss the study's intent with the children, although the training focus on advertising likely made the purpose of the study and the post-test self-evident. Because of the small population size ($N = 52$), a control group was

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not used for the study. While a control group is desirable for determining advertising recognition without training, Kerlinger (1973) asserted it was not necessarily required to establish internal validity.

Students logged into separate computers and accessed the survey Website. Screen shots of the Neopets game navigation pages and the "All Fur One" game based on the *Open Season* animated movie were displayed. The post-test survey was similar to the first although it used screen shots of Neopets World navigation page and a different branded game, Reeses' Puffs. The online survey and real-time versions of the games and pages were shown via laptop and data projector to provide visual references and direction for the students as they filled out the survey.

Screen shots rather than live links were used as the lab's computers did not have Flash programming loaded onto the system. Neopets games require Flash, so screen shots had to be utilized. Also, Neopets rotates their advertising with each click, with three to four advertisers rotating on any given page. Stable screen shots enabled accurate aided questions about banner and button ads and reduced the chances of showing advertising content to students that might be deemed inappropriate by school officials and parents. Children were asked questions about the advertising on the pages in both unassisted and assisted formats. Additional opinion questions were included to reduce participant awareness of the purpose of the study. Non-identifiable demographic information was also collected from participants.

Participants

Participants in this study consisted of the entire population of fourth and fifth grade computer class students ($N = 52$) from a private, Christian school in Virginia. The same 52 students participated in the pre- and post-test segments of this research. Among them were 19 fourth graders and 33 fifth graders. They ranged in age from 9–12 years-old (age $M = 10.17$). The participant's age range falls directly within Piaget's (1958) concrete operational stage.

Administrative and teacher support was obtained prior to the start of the project. Parental notice and approval was also sought and obtained prior to the administration of the survey. Anonymity of the students was maintained throughout the study. There were 23 boys and 29 girls of primarily middle- to upper-class economic status. While the majority of students were Caucasian, African-American and Asian students were also represented in the population. Computer skills ranged from novice to highly adept as this was only the second year for computer training at the school.

Survey Instrument

The survey instruments contained 17 questions pre-test (see Appendix A) and 19 questions post-test (see Appendix B). The additional questions on the post-test centered on opinions about Website navigation and a preference question about the types of activities the participant might enjoy on the Website. These were non-study related questions designed to create variation between pre-test and post-test instruments and reduce participant fatigue between surveys. A Flesch-Kincaid Grade Level analysis of the survey placed it at a second grade reading level. Further review by the school staff also supported the survey's ease of reading comprehension for students.

One problem with the survey that emerged during the study was confusion about use questions. Students misinterpreted questions about whether they had visited the Neopets Website and about Internet access questions, which were intended to reflect children's at-home usage. Since students accessed Neopets as part of the study and also accessed the Internet at school, they equated this with being Neopets and Internet users even though when queried, the children's only access was at school. Clarifications were required to help children understand the differences between in-school and out-of-school Internet access. The researcher verbally explained the difference between at-home and in-school access when students' expressed confusion regarding the question.

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Results

An overview of the data is provided in Table 1 indicating overall data patterns for the key research variables. These results show that prior to training, the majority of children do not recognize advertising content in either traditional, advergaming or embedded ads in online environments. The data also suggest that even brief media literacy training positively influences advertising recall (See Table 1). Unassisted recall simply asked if the participant had seen any ads on the Website or in the game. If the respondent indicated they had seen an ad, an open ended response box prompted them to indicate unassisted what they had seen. All participants had the opportunity to select the correct ads that appeared either in the game or on the Website from a list of 10 options which included company names that did not appear on the site and an option "There were no ads." Only respondents that selected one or more options correctly were included in the reported data. Individuals who had both correct and incorrect responses were excluded to reduce the element of guessing in the responses ($n = 7$). The hypotheses and research questions will now be explored individually going beyond the baseline data in Table 1 and using primarily non-parametric measures.

Research Question #1: Extent of Online Advertising Recall

How adept are children at recognizing, either assisted or unassisted, advertising on a Website (Neopets) targeted at children? The first measure, unassisted recall of traditional banner and button ads before media literacy training found 30.8% of children surveyed were able to recall Website ads. This same percentage of children was also able to recall advergaming ads unassisted (30.8%). The assisted recall rates rise for traditional (42.3%) and advergaming ads (38.5%) prior to media literacy training, the vast majority of children were unable to positively identify either form of online advertising. Children were asked to identify the game as an ad in the assisted recall response and only 23.1% were able to identify the advertising intent of advergames. This finding was reinforced in a subsequent question which identified "selling" as a purpose for the advergames. Again, few children (23.1%) identified the marketing intent of advergames. Overall, about two-thirds of those in the study were unable to identify advertisements and advertising intent of games on Neopets prior to literacy training.

H1: Older Children Will Recognize Advertising More than Younger Children

The data supported previous research that older children have higher recognition rates than younger ones. When grouped by grade, Website recall pre- or post-test was not significant at the .05 level. A t-test of post-test assisted recall by grade indicated a significant difference between fourth ($M = 3.30$) and fifth grade recognition ($M = 4.25$) $t = -.239$ df (26.64), $p = .024$, $p < .05$.

The participant's age, however, was a more significant determinant of advertising recognition. Using ANOVA comparison of age and advertising recognition for assisted recall of traditional online and advergaming ads, results indicated that age differences were more significant during the pre-testing (see Table 2). It seems a possible effect of the media literacy training is a reduction in significant

Table 1. Composite Frequencies of Advertising Recognition

Variables	Pre-Test	Post-Test
Unassisted Recall of Traditional Online Ads	30.8%	44.2%
Assisted Recall of Traditional Online Ads	42.3	61.5
Unassisted Recall of Advergaming Ads	30.8	57.7
Assisted Recall of Advergaming Ads	38.5	71.2
Recognition of Advergame as an Ad	23.1	32.7

Table 2. Impact of Age on Advertising Recognition

Variables	Pre-test			Post-test		
	f	*df*	*sig*	*f*	*df*	*sig.*
Assisted Recall of Traditional Online Ads	3.406	3, 48	.025*	.130	4, 47	.971
Assisted Recall of Advergaming Ads	3.487	2, 48	.039*	1.59	2, 47	.223

*Correlation is significant at the .05 level

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recognition levels variance created by age differences between 9 to 12 year olds in this study. H1 is only partially accepted based on this finding and may hold true only in the absence of literacy exposure.

H2: Media Literacy training will increase advertising recognition

Because of the small population ($N = 52$) non-parametric measures were used to determine significance of variance between pre- and post-test measures of advertising recognition. The largest increase (32.7%) was between pre- and post-test data for assisted recall of ads embedded in advergames. Pearson Chi-Square analysis resulted in $\chi^2 = 13.176$, df (1), $p = .000$, $p < .05$.

Pearson Chi-Square comparison of recognition of the advergames as advertising compared to all other purposes (recreation, learning and revenue for the Website) was not significant between pre-test and post-test ($\chi^2 = .361$, $p = .548$, $p > .05$).

Chi-Square analysis for the remaining measures resulted in findings that exceeded the .05 significance levels. Since frequency data appeared to demonstrate a significant movement between pre- and post-test scores and since Chi-Square data was close to the .05 level, there is the possibility that the small population size affected the Chi-Square analysis. A more sensitive test that works with nominal data is the Kolmogorov-Smirnov (K-S) test. This test constructs a hypothetical distribution rather than relying on the actual distribution as in a Chi-Square (Morris et al., 1969).

K-S analysis of unassisted recall of traditional Website ads indicated a significant variance at the .05 level between the pre-test ($z = 2.659$, $p = .000$) and post-test ($z = 1.718$, $p = .005$). Assisted recall of embedded ads in advergames also indicated a greater significant variance at the .01 level between pre-test ($z = 3.157$, $p = .000$) and post-test ($z = 2.44$, $p = .000$). Based on this analysis H2 is supported for unassisted and assisted advertising recognition.

Limitations

The small number of participants in the study was a limiting factor. Also the homogenous nature of the student population at this small, Christian school was another limitation. Technology issues such as the lack of Flash software and limited Internet access were also problematic because children could not interact with the Website which would provide a more naturalistic approach. Conservative restrictions on Web content (no faeries, dragons or similar magical characters) were required by the school. This limited the amount of the Neopets Website that could be accessed since some of the content includes these types of images.

The children's varying degrees of computer skills also hindered the survey collection process. Considerable time was spent keying in the survey URL and explaining how to use the online survey. While this provided a learning experience for children, it limited the amount of time available for literacy training. A single session for literacy training was also not optimal. If additional time was available for training and testing a clear picture might emerge about the impact of literacy training.

Discussion

The ability of elementary children to recognize both traditional online advertising such as banner and button ads and embedded advertising that is part of advergames seems to be limited. With only about a third of the children able to accurately identify advertising, a large percentage is left unable to identify advertising content. This should be of concern to parents and educators who have the responsibility to educate children about Internet use.

More problematic is the recognition of advertising's purpose. Even with literacy training about one-third of the students in this study could not recognize the advergame itself as a source of advertising. Henke (1999) found that children (87%) also don't identify their favorite Website's purpose as marketing even though most identified Toys R Us or Ben and Jerry's as their favorite sites. Recognition of the advertising purpose of both Websites and advergames needs to be further explored. There may need to be

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additional exposure and experience with these concepts in literacy training to effect a change in this area of literacy.

Recognition of advertising formats does not measure the intent to purchase or potential influence of advertising on children. In future studies an intent to purchase, or measurement of buying activity following advertising exposure, should be explored. Expecting literacy training to "inoculate" children against the effects of advertising should not be the ultimate goal. Giving children the critical skills to assess the media is a realistic objective for literacy education.

The results of this study show an encouraging opportunity for media literacy education to have a positive impact on children's understanding of mediated messages. If a brief 10-minute PowerPoint presentation can create significant results, imagine the results a semester-long class in media literacy could create. Providing opportunities within schools and our communities for these instructional opportunities should be a priority for educators.

Additional research is needed to better assess recognition levels and the effect of media literacy training in an online environment. While a considerable body exists for the effects of television on children, the impact of online advergames ads and traditional online advertising has not been well established. With children spending increasing amounts of time online and spending more consumer dollars, the need for a better understanding of their online interface with advertising messages warrants our attention.

COLUMBIA ONLINE CITATION: HUMANITIES STYLE

Wollslager, M. Eilene. "Children's Awareness of Online Advertising on Neopets: the Effect of Media Literacy Training on Recall." *Studies in Media & Information Literacy Education 9.2* (2009). http://www.utpress.utoronto.ca/journal/ejournals/simile (May, 2009).

COLUMBIA ONLINE CITATION: SCIENTIFIC STYLE

Wollslager, M. Eilene. Children's Awareness of Online Advertising on Neopets: the Effect of Media Literacy Training on Recall. http://www.utpress.utoronto.ca/journal/ejournals/simile (May, 2009).

BIOGRAPHICAL INFORMATION

Eilene Wollslager is a Ph.D. candidate at Regent University and is currently an instructor for Trinity University in San Antonio, TX. This is a pilot study for her dissertation on media literacy. Her additional research interests include computer-mediated communication, crisis communication and the public relations topics.

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Appendix A

Pre-test survey

Hi!

Thanks for helping with our survey. I will be asking you what you think about some fun Websites. First I want to ask you a few questions about yourself. When you finish, click on the word "next" to go to the next page.

Click on the box next to your answer.

(1) **Are you a. . .**
- ☐ Boy
- ☐ Girl

(2) **What grade are you in?**
- ☐ 3rd
- ☐ 4th
- ☐ 5th

(3) **How old are you?**
- ☐ 7
- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12

(4) **How often do you usually go on the Internet?**
- ☐ Never
- ☐ 1-2 days per week
- ☐ 3-4 days per week
- ☐ 5-6 days per week
- ☐ Every day (7 days per week)

(5) **How many times do you play games on the Internet each week?**
- ☐ I never play games online
- ☐ 1-2 times
- ☐ 3-4 times
- ☐ 5-6 times
- ☐ 7 or More times per week

(6) **Have you ever visited the Website Neopets?**
- ☐ Yes
- ☐ No
- ☐ Not Sure

Have you played Neopets?

If you've ever visited Neopets, answer the following 2 questions. When you're done, click on "Next."

(7) **How often do you visit Neopets?**
- ☐ Less than 1 time per month
- ☐ 2-3 times per month
- ☐ 4-5 times per month
- ☐ Nearly every day
- ☐ More than once a day

(8) **Have you played the game One Fur All (Open Season movie game) on Neopets?**
- ☐ Never
- ☐ 1 time
- ☐ 2-3 times
- ☐ 4-5 times
- ☐ 6 or more times

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This is the Neopets Games Page.

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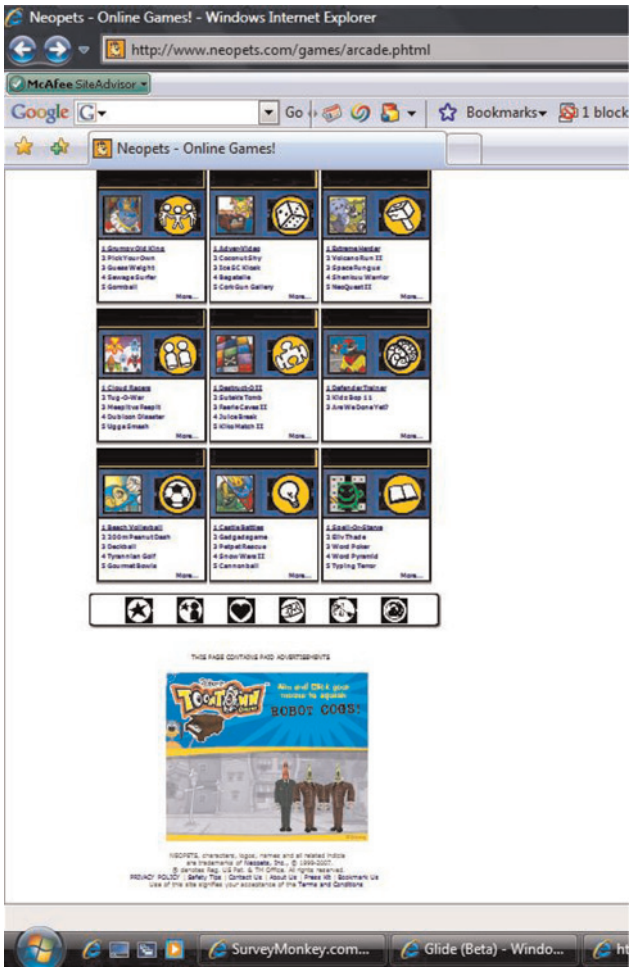
This is the bottom half of the Neopets games page. As you can see they have lots of different games.



Please answer the following questions based on the pages you just viewed. Do not go back to look at the pages. Answer the questions based on what you remember.

(9) **How much do you think you would like to play on this Website?**

- ☐ None
- ☐ A little
- ☐ Some
- ☐ A lot
- ☐ All the time

(10) **Do you remember seeing any ads for products on this Website?**

- ☐ Yes
- ☐ No
- ☐ Not Sure

(11) **If you remember seeing an ad, what was it about?**

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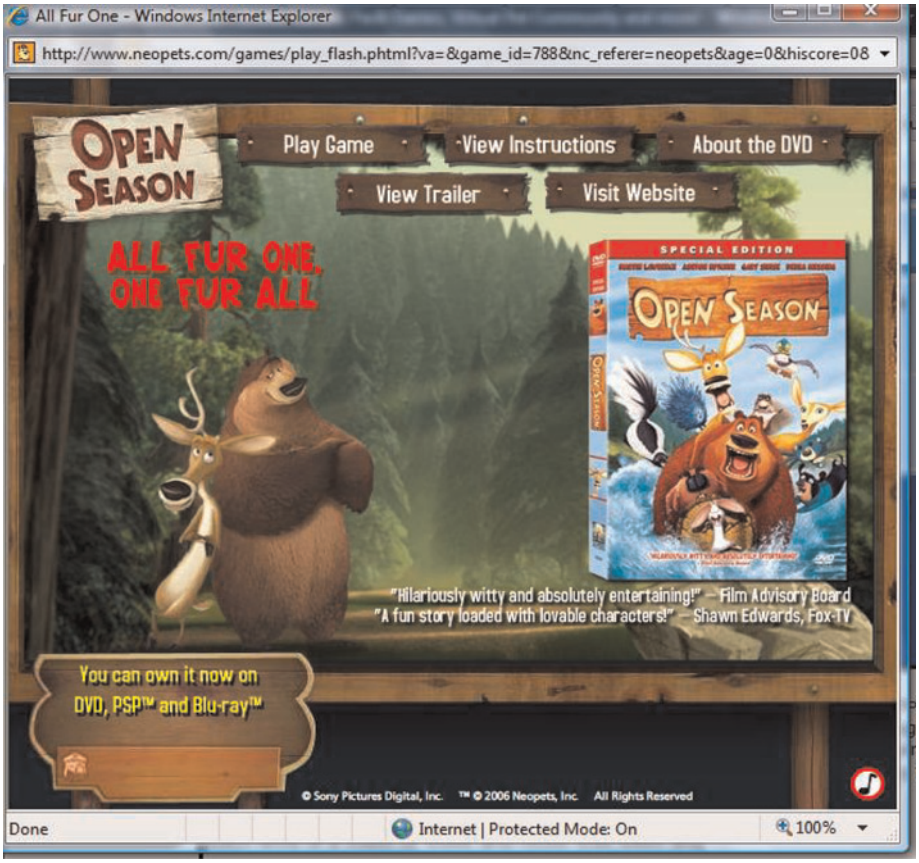
(12) **Did you remember seeing ads for any of the following products? You can check more than one product or click "There were no ads" if you don't think there were ads.**

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
There were no ads	Coca Cola	Kidz Bop 11	Stock market tips book	Nickelodeon	Toon Town Robo Cogs	LittleBook.com	Ricochet Game	Neopets	Real Age

Next are two pictures of a game on Neopets called "All Fur One." Once you look at it, you can answer the next questions about the "All Fur One" game.


All Fur One - Windows Internet Explorer
http://www.neopets.com/games/play_flash.phtml?va=&game_id=788&nc_referer=neopets&age=0&hiscore=08
OPEN SEASON
Play Game
View Instructions
About the DVD
View Trailer
Visit Website
ALL FUR ONE, ONE FUR ALL
SPECIAL EDITION
OPEN SEASON
"Hilariously witty and absolutely entertaining!" – Film Advisory Board
"A fun story loaded with lovable characters!" – Shawn Edwards, Fox-TV
You can own it now on DVD, PSP™ and Blu-ray™
© Sony Pictures Digital, Inc. ™ © 2006 Neopets, Inc. All Rights Reserved
Done
Internet | Protected Mode: On
100%

This is an action game featuring Boog and Elliott.

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This is what the game looks like when you play it.

Answer the next questions based on what you remember about the "All Fur One" game. Do not go back and look at the pictures. Just answer based on what you remember.

(13) **How much do you like the "One Fur All" game?**

- ☐ Do not like it
- ☐ Like it a little
- ☐ Like it some
- ☐ Like it a lot
- ☐ Like it a whole lot

(14) **Did this game have any ads?**

- ☐ Yes
- ☐ No
- ☐ Not Sure

(15) **If you remember seeing an ad, what was it about?**

(16) **Did you remember seeing ads for any of the following products? You can check more than one product or click "There were no ads" if you don't think there were ads.**

☐ There were no ads	☐ Pepsi	☐ Open Season DVD	☐ Neopets	☐ Blu-Ray	☐ PSP	☐ Real arcade.com	☐ Shaterra	☐ eBay.com	☐ The game is an ad

(17) **What do you think is the #1 reason Neopets has "One Fur All" game on its Website?**

- ☐ It is fun game for kids
- ☐ To help kids learn
- ☐ To make money for Neopets
- ☐ To sell Open Season DVDs
- ☐ Not sure why Neopets has this game

Thanks!

That's all the questions. Thanks for helping me!

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Appendix B

Post-Test Survey

What do you think?

Today I'm going to ask you your opinions about the Website Neopets, which has fun games. Please look at two pages from this Website then answer the following questions.

This is the World of Neopia. It is a directory of the different places you can go in Neopets.

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When you log onto Neopets you go to this page, Pet Central.

Please answer the following questions based on the pages you just viewed. Do not go back to look at the pages. Answer the questions based on what you remember.

(1) **How easy do you think it would be to find your way around this Website?**
- ☐ Not at all easy
- ☐ A little easy
- ☐ Somewhat easy
- ☐ Very easy
- ☐ Totally easy

(2) **What do you think you would enjoy most about Neopets?**
- ☐ Playing games
- ☐ Visiting different places in the world
- ☐ Adopting Pets
- ☐ Reading the News
- ☐ Would not enjoy anything

(3) **Do you remember seeing any ads for products on this Website?**
- ☐ Yes
- ☐ No

(4) **If you remember seeing an ad, what was it about?**

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(5) **Did you remember seeing ads for any of the following products? You can check more than one product or click "There were no ads" if you don't think there were ads.**

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
There were no ads	Coca Cola	New York Times	Stock market tips book	Nickelodeon	Verizon	Mimzy	Windows Live	Neopets	Real Age

Reese's Puffs

Next are two pictures of a game on Neopets called "Reese's Puffs." Once you look at it, you can answer the next questions about the "Reese's Puffs" game. This is an action game that increases left-hand typing skills.

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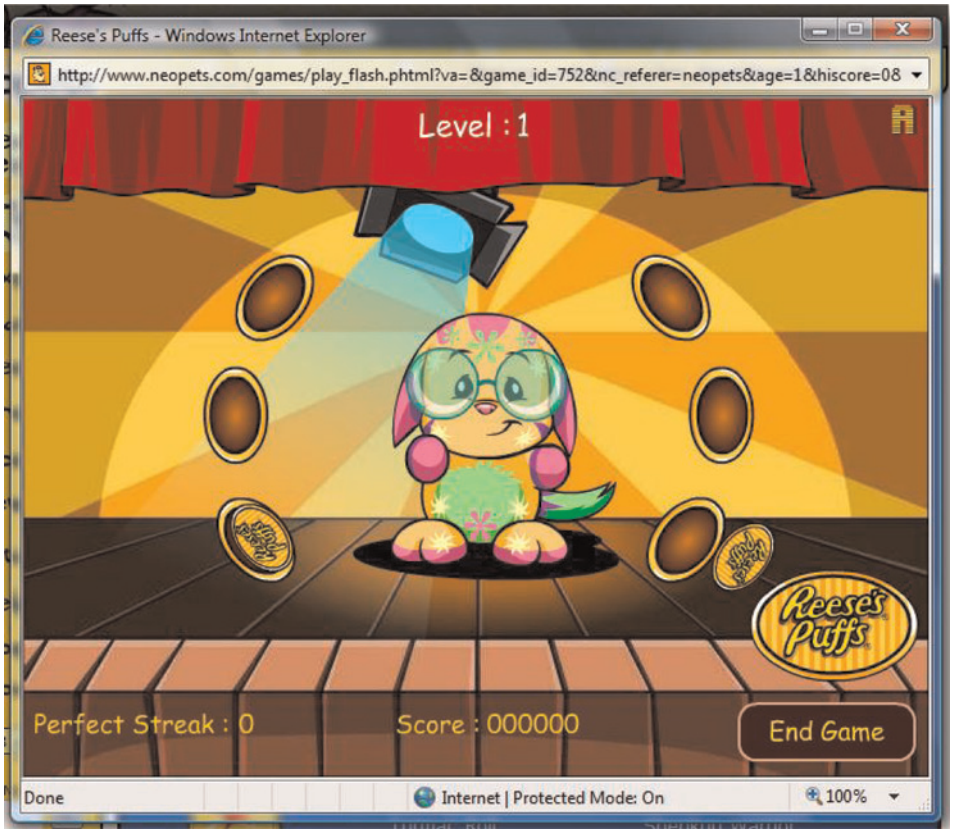
This is what the game looks like when you play it.



Answer the next questions based on what you remember about the "Reese's Puffs" game. Do not go back and look at the pictures. Just answer based on what you remember.

(6) **How much do you think you would like playing the "Reese's Puffs" game?**

- ☐ Do not like it
- ☐ Like it a little
- ☐ Like it some
- ☐ Like it a lot
- ☐ Like it a whole lot

(7) **How much do you think you this game could help your typing skills?**

- ☐ None
- ☐ A little
- ☐ Some
- ☐ A lot
- ☐ A whole lot

(8) **Did this game have any ads?**

- ☐ No
- ☐ Yes

(9) **If you remember seeing an ad, what was it about?**

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(10) **Did you remember seeing ads for any of the following products? You can check more than one product or click "There were no ads" if you don't think there were ads.**

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
There were no ads	Pepsi	Reese's Puffs	Neopets Online Catalog	BluRay	PSP	Neopets	Shaterra	eBay.com	The game is an ad

(11) **What do you think is the #1 reason Neopets has "Reese's Puffs" game on its Website?**

- ☐ It is fun game for kids
- ☐ To help kids learn
- ☐ To make money for Neopets
- ☐ To sell Reese's Puffs cereal
- ☐ Not sure why Neopets has this game

Before you finish, please answer the following questions about yourself. Remember, your name or personal information won't be taken or shared with anyone.
Click on the box next to your answer.

(12) **Are you a. . .**

- ☐ Boy
- ☐ Girl

(13) **What grade are you in?**

- ☐ 3rd
- ☐ 4th
- ☐ 5th

(14) **How old are you?**

- ☐ 8
- ☐ 9
- ☐ 10
- ☐ 11
- ☐ 12

(15) **How often do you usually go on the Internet at home?**

- ☐ Never
- ☐ 1-2 days per week
- ☐ 3-4 days per week
- ☐ 5-6 days per week
- ☐ Every day (7 days per week)

(16) **How many times do you play games on the Internet each week?**

- ☐ I never play games online
- ☐ 1-2 times
- ☐ 3-4 times
- ☐ 5-6 times
- ☐ 7 or More times per week

(17) **Have you ever visited Neopets?**

- ☐ Yes
- ☐ No

If you've ever visited Neopets, answer the following 2 questions.
When you're done, click on "Next."

(18) **How often do you visit Neopets?**

- ☐ Less than 1 time per month
- ☐ 2-3 times per month
- ☐ 4-5 times per month
- ☐ Nearly every day
- ☐ More than once a day

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(19) **How often have you played the Reese's Puffs game?**

- ☐ Never
- ☐ 1 time
- ☐ 2-3 times
- ☐ 4-5 times
- ☐ 6 or more times

Thanks!

That's all the questions. Thanks for helping me!

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